

WIRE NO. 30I

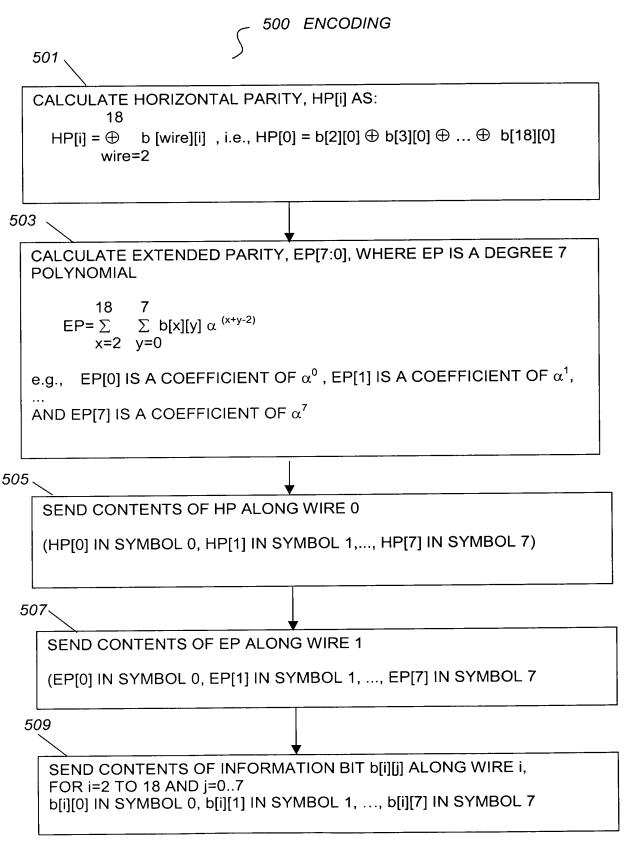


FIG. 5 (PRIOR ART)

600 DECODING 601 CALCULATE SYND 0, REPRESENT 0 AS {e7, e6, ..., e0}, AN 8 BIT QUANTITY, WHERE, \oplus b[x][i] \oplus b[0][i]e[i] =x=2603 CALCULATE SYND 1, A POLYNOMIAL OF DEGREE 7 synd 1 = $(\sum_{i=0}^{\infty} b[1][i]\alpha^{i}) + \sum_{x=2}^{\infty} \sum_{y=0}^{\infty} b[x][y] \alpha^{x+y-2}$ 605 NO synd 0 = 0? YES 607 609 NO synd 1 = 0? synd 1 = 0? 613 615 611 YES YES NO 1. ERROR IN WIRE 0 1. NO ERROR 1. ERROR IN WIRE 1 2. USE THE BITS 2. USE THE BITS 2. USE THE b[18:2][7:0] UNMODIFIED **BITS** b[18:2][7:0] AS DATA **UNMODIFIED AS DATA** [b18:2][7:0] AS DATA

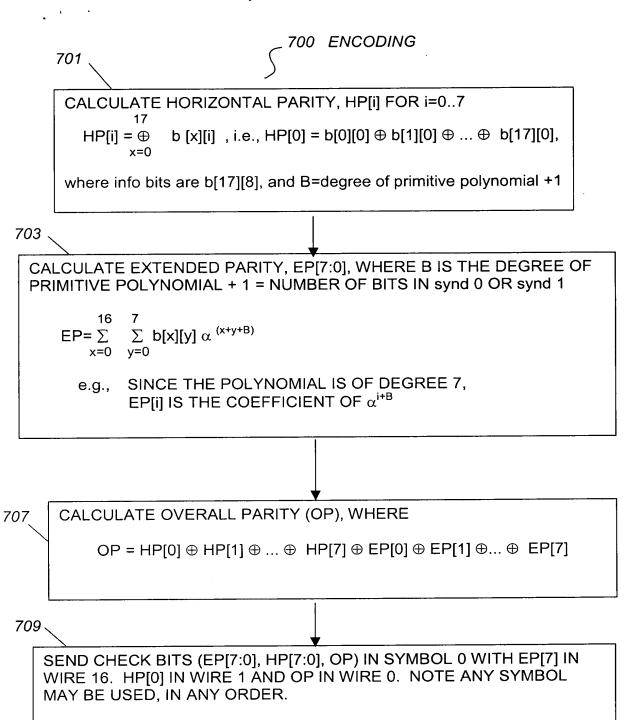
FIG. 6A (PRIOR ART)

В 621 ERR_WIRE = 2 623 CALCULATE: SYND1_IF_ERROR_IN_ERR_WIRE = $\alpha^{(err_wire - 2)}$ (e7 α^7 + e6 α^6 + e5 α^5 + ... + e1 α + e0) 625 synd1_if_error_in_wire = synd1 YES 631 NO 627 err_wire = err_wire + 1 0. BITS IN ERROR {e7, e6, ..., e0} 629 1. ERROR IN WIRE err_wire NO 2. FLIP THE BITS b[err_wire][i] BY e[i] for i=0..7 err_wire > 18? 3. USE THE OTHER BITS IN OTHER WIRES b[x][i] FOR I=0..7, X=2..18 AND $X \neq err_wire$ YES WITHOUT MODIFICATION AS 633 **DATA** 1. MULTI-WIRE ERROR 2. CANNOT USE THE DATA

FIG. 6B (PRIOR ART)

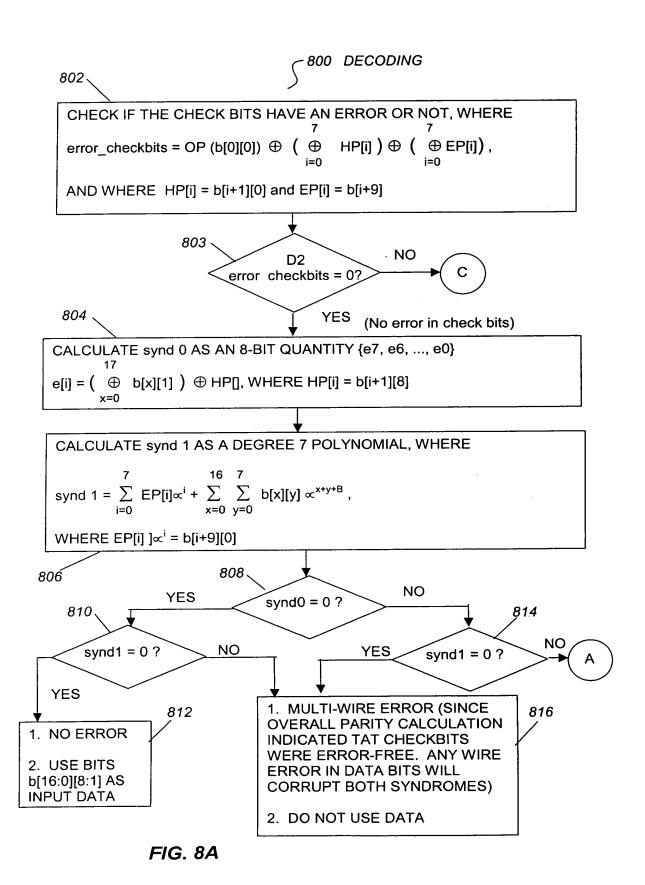
Title: IN-LINE WIRE ERROR CORRECTION Inventor(s): Debendra DAS SHARMA Contact Name: David A. Plettner (408) 447-3013

Attorney Docket No.: 10019859-1



THE REST OF THE BITS ARE PUT INTO SYMBOLS 1THOUGH 8;

SYMBOL [i] CARRIES b[16..0][i]



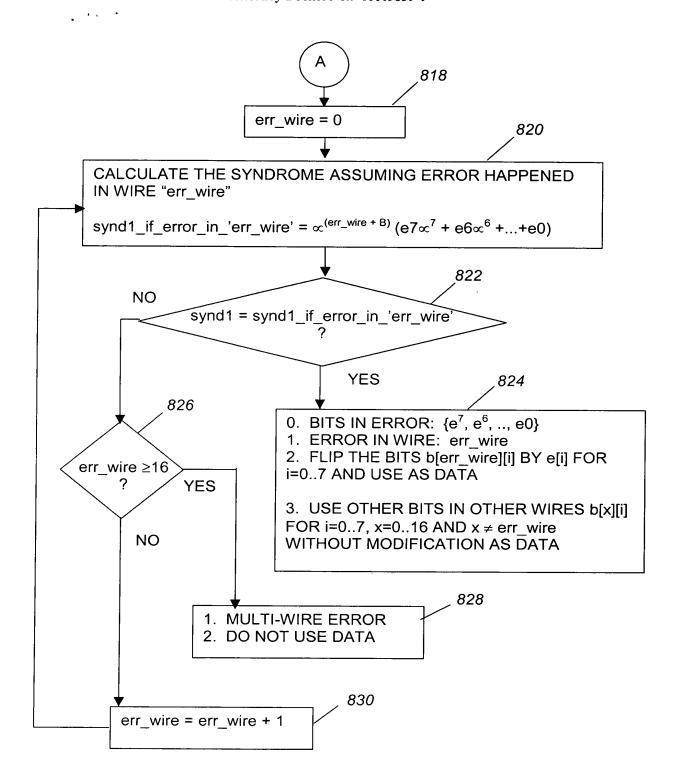


FIG. 8B

832 err wire = 0 834 PERFORM STEPS 804, 806, 808, 810, 814, 812, 816 836 PERFORM STEPS820, 822, 824 838 NO, not possible IE ,NO, IN STEP D12? YES 840 err_wire = 1 842 HP'[i] = HP[i]D22 EP'[i] = EP[i],for i=0..7 Here, HP' 845 and EP' 844 YES reflect the $HP'[err_wire -1] =$ HP and EP err_wire < 9 ~HP'[err_wire -1] after flipping the required bit, 846 assuming NO an error in $EP'[err_wire] = \sim EP'[err_wire - 9]$ err-wire 848 CALCULATE synd 0 AS AN 8-BIT QUANITITY {e7, e6, ..., e0} e[i] = ⊕ $b[x][i+1] \oplus HP'[i] \text{ synd0} = \{e7,..,e0\}$ x=2 D FIG. 8C

